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CONTRIBUTORS

P. B. POTTER

L. C. PRICKETT

MARIE MIRVIS

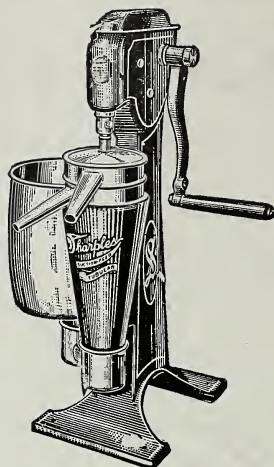
C. H. SPRAGUE

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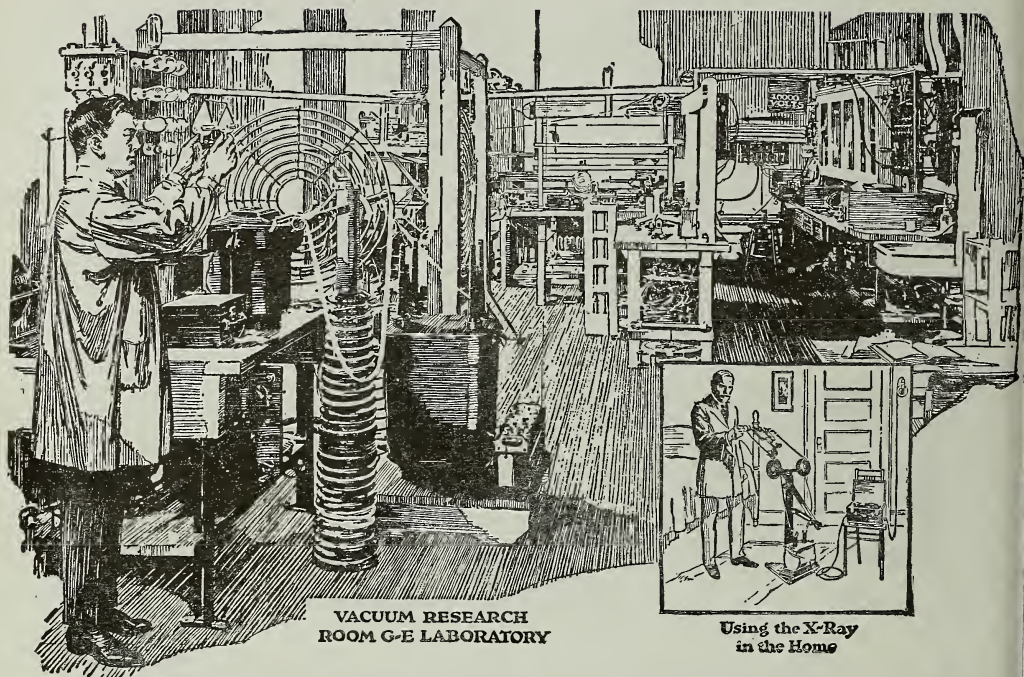
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No. 8

SOME PRESENT DAY DRAINAGE PROBLEMS

By P. B. POTTER.

(Prof. Potter has had considerable experience with drainage and thus can give us some advice in general drainage problems.)

TILE drainage, has, in nearly all cases, paid a high return on the investment. Returns of 12, 15 and 20 per cent on the investment have been common and many instances are known where tiling has paid for itself in three to five years. We have been inclined to think that drainage did not pay unless it paid for itself in ten years or made a return of ten per cent on the investment. From those who have tiled you have always heard the testimony that drainage pays.

With the increasing cost of clay tile and of transportation, of tools, labor, etc., there will be a constantly decreasing margin of return on the investment. This will continue to be true until prices of farm products rise to the price level of other commodities. Farmers will be more and more inclined to abandon the tile drainage that they had planned. It will appear that drainage systems installed at the present high prices cannot pay, especially if there be no substantial increase in the price of farm products. But this does not figure out to be the case. The original high margin on the drainage investment will bear some reduction before it will be unprofitable to drain. A few figures will serve to illustrate.

Average tile drains over the state are laid, perhaps, a distance of about four rods apart. A good deal of it is laid three rods apart, but this usually occurs on good land that will bring a larger return. With a spacing of four

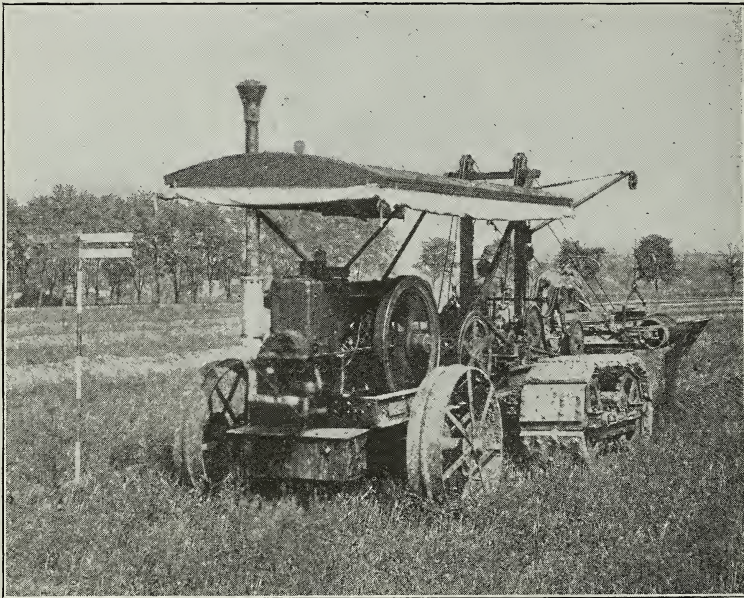
rods apart, 40 rods of tile will be required for an acre. The cost of one rod of tile drain will be made up about as follows: Four-inch tile, 65c; ditching and laying, 75c; backfilling the ditch, 15c; total, \$1.55. Forty rods at this price would make the cost of draining an acre equal to 40×1.55 , or \$62.00. If money is to be had at 6 per cent, the drainage will have to produce an increase from the land equal to 6 per cent of \$62.00, or \$3.72. Two bushels of wheat at the minimum price of \$2.20 will make an increase of \$4.40 an acre, or a return of over seven per cent on the investment. Five bushels of corn at the present price of \$1.70 a bushel will make an increase of \$8.50 per acre, or a return of 13.7 per cent on the investment. These two instances of increased yields due to the drainage are less than what might usually be expected for these crops. Special crops like tobacco, onions, and truck crops often return 100 to 200 per cent on the investment.

It used to be that our drain tiles were laid by hand. During the "between season" periods on the farm the hands would all turn in and "dig ditch." An expert ditcher was usually hired to grade the ditch bottom and lay the tile. A considerable amount of ditching was done each year, so that in a few years the worst parts of the farm were taken care of. The tiles were laid where they would do the most good and no predetermined plan was

followed, but the present price of labor practically precludes its use in draining by the old method. Not only would the cost of labor for digging the ditch by the old method exceed the limit for profitable drainage, but, it is now practically impossible to secure and keep labor on work of this kind. As a result, tile drainage, like nearly every other process in our national routine, has

delivered. The manufacture of power ditchers is not extensive enough to meet the demand, and their high cost tends further to decrease their number.

Along with the problem of the ditching machine the difficulty of securing good men to operate them arises. The job is a hard one. It requires a strong-bodied man and one with considerable intelligence. He should also possess



WE MUST DEPEND UPON THE POWER DITCHERS IN OUR DRAINAGE WORK FROM NOW ON.

come to the point where it must depend upon machinery.

The tile ditching machine will be the governing factor in the amount of ditching that we will be able to do in any given time. Just as machines are available to do the work will just so much draining be done. Not more than two counties in the state have anything like the number of machines they should have. Practically every machine in the field has orders booked for a year in advance. More machines cannot be had. Traction ditchers which were ordered last fall are just now being

considerable mechanical instinct and an abundant patience for arduous details, as well as an understanding of the principles of drainage. Such a man is a skilled workman and should be paid as such. Not nearly enough of his kind are to be found. A splendid opportunity lies here for agricultural graduates who have the necessary talents.

We should not overlook the problem of careful planning in our drainage work. With the increased costs and the decreased margins of return we must more and more eliminate the mis-

(Continued on page 399)

THE AGRICULTURE OF SOUTHERN ALBERTA

By LEE C. PRICKETT, '20.

(Mr. Prickett spent the past summer in Alberta. He tells of instances and conditions and characteristics of that country and of some of the successes and failures of those with whom he was acquainted.)

WHEN Canada is spoken of in an agricultural way, you are probably accustomed to calling up in your mind a picture of vast farms devoted to wheat and other small grain raising, but this is due more to the fact that the prairie has been the last part of Canada to be developed agriculturally. However, Canada has almost as varied an agriculture as the United States. Thus in Quebec and Eastern Ontario we find an agriculture similar to that found in the New England and North Central sections of the States. In the western two-thirds of Ontario and Eastern Manitoba we have a region of poor, thin soils that are of very little use agriculturally. Still further west in Manitoba and a large portion of Saskatchewan we have the cream of the prairies, land ranging up to three hundred dollars per acre around Winnipeg where it is as level as a floor, and the soil and climate are also very good. On the west coast of British Columbia we have a rolling to mountainous topography, and the climate is much milder, the entire district being wooded and adapted to fruit raising and general agriculture. But the district that we are interested in is the one lying east of British Columbia, namely "Sunny Alberta" as it is so aptly called.

Alberta is almost entirely a level prairie, only a small portion of the western part being covered with a stunted "Bush" as this type of scraggly forest is called. The northern portion, as far south as Edmonton, is in the belt where frosts take the grain crop two years out of three; but there is an abundance of rainfall and hay of

all kinds thrives wonderfully well, and for this reason stock raising will eventually be very important in this section. It has not yet been settled up to any extent as it is so far away from civilization, as it were, but here lies the only good fertile lands that are still available for homesteading, barring a few scattered areas in British Columbia where the land is still largely covered with timber. Another asset of this section is its great abundance of game, both large and small, but strange to say there are no fish in the streams and lakes. According to an old Indian legend there was a very severe drouth a good many years ago, of such long duration that all of the streams and lakes were dried up so completely that no form of aquatic life remained living. The drainage of most all of the entire district is northward toward Hudson Bay, and this of course renders natural restocking with fresh water fish well nigh impossible.

Between Edmonton and Calgary we have a section where the frost menace is not nearly so great as farther north, and where the rainfall is more abundant than in the semi-arid region of the south. The land has all been homesteaded or reserved for the ex-soldiers, fifteen miles on either side of the railroads being retained for this purpose, altho only in the very northern part of this district was there any land left to reserve. This is Alberta's best district for general dry farming, for it is a mean between two equally undesirable conditions, the northern frosts and the southern drouth.

Between Calgary and the northern

border of the United States we have the dry section of Alberta, which has an annual average rainfall of between 15 and 20 inches. Here the crops burn up at least two out of three years and sometimes oftener, and this is the place where the wheat gambler is making his last stand. Now if drouth resisting crops, such as rye and alfalfa, are raised, there will be no such failures as are now found on every hand in this section where dry wheat farming is being practiced. A few of the wise ones are doing this and are succeeding, but the others are not and are making a dismal failure of it, one man next to us having lost \$24,000 during the last three years, these years having been dry ones. When it costs \$3.50 per acre to get your plowing done, more if it is put in in a hurry with a tractor and much more if it is the first breaking, forty cents for seeding, and other expenses such as fitting and harvesting in the same proportion, it is readily seen that one crop in three would not much more than pay for the labor of putting in the three crops, leaving out all together any profit for the farmer. This year the wheat on the dry land ran about five bushels to the acre on the Milky Way Farm of about three thousand acres, near Lathom, and it was of poor quality in many cases, whereas the rye under identically the same conditions ran twenty bushels the acre on a trial patch of one hundred and sixty acres. The rye was favored in the fall by a light rain which helped to give it a good start, but it was pastured so closely in the fall that it was as sere and brown as a floor, but in spite of this handicap it recovered in the spring. It is therefore evident that rye, especially as it is in a position to profit by the more frequent rains of the fall in getting its start, is far better

adapted to this section than wheat. Alfalfa has made as good or better showing, both on the C. P. R. (Canadian Pacific Railroad) demonstration farms near Bassano, where the C. P. R. demonstrates in a practical way what can be done with the lands of the section where the farms are located, and also on the farms of a few actual settlers who were willing to heed advice as indicated by these results. Winter wheat freezes out here on account of the alternate freezing and thawing brought about by the chinook winds. Further east it is successfully grown. In my estimation the great hope of the future farmer of this section is the irrigation ditch. The abundant rains of the north furnish more than enough water to supply the needs of the farmers, and the C. P. R. has spent millions in building big canals from the Bow River, where they have built a huge dam, and water is now available to all those who will survey and make their ditches or hire it done if unable to do it themselves.

The dry land averages about twenty dollars per acre in the raw state, while all land that is found irrigable by surveying runs about fifty dollars, and in case that it was bought previously they pay the C. P. R. the difference in price per acre for every acre that is irrigated.

These irrigated farms have proved a veritable gold mine for a few men who were wide awake and on the job. One man at Brooks received over \$1300.00 per acre for his alfalfa seed this year, while his neighbor received over \$800.00, corresponding of course to different yields. These are exceptional, but the average over a series of years has been over \$300.00 per acre. For the man who uses his head and don't try to farm as he did at home there are

plenty of profitable crops that can be raised. Alfalfa needs a dry season for maturing its seed, and if there is plenty of rain in the spring to give it a start the yields of seed are almost phenomenal, and this is where the beauty of irrigation comes. In time this part of the world will probably furnish a goodly portion of the world's supply of alfalfa seed, and it will always be quite profitable, as conditions are ideal for its production.

But alfalfa and rye are not the only

garden one day I was interested in finding out whether they were as good as they looked, fearing that they might be largely tops as they stood up around my waist and were a perfect mass of bloom, a characteristic of potatoes growing there. I dug a good many hills at random, and then selected a good average one and it weighed six pounds and contained only nine potatoes, or just about four hundred bushels to the acre. Now this is not unheard of, but when we take into con-



A BREAKING SCENE OF THE NORTHWEST

crops adapted to this region, for all kinds of roots such as mangels, sugar beets and turnips, and all kinds of plants that thrive in cool weather, flourish in this region. We had some peas and oats in one of our irrigated fields which resembled a tropical jungle even tho they were only about five feet high. It must have yielded nearly four tons of green stuff to the acre. In our garden we had a winter radish that weighed fifteen ounces, but the average Buckeye will only scoff when he reads this, not knowing conditions as they are up here. Irish potatoes also thrive wonderfully well and in going thru the

sideration the fact that these potatoes were put into ground that was not so very rich, being of a light sandy nature and having no manure or fertilizer put on it, and further having no cultivating except going over twice with a lawn rake, the yield is seen to be due at least in part to the climate. These, of course, were irrigated. Sugar beets, if the help problem can be solved, will prove to be a big money-making crop. Strawberries and canned fruits are also grown with proper care and they are almost prohibitive in price, no one ever taking the time to raise any fruits and very little garden truck.

Stock raising, more especially cattle with a smaller number of horses, (although one man has over two hundred mares some of which are registered and five stallions three of which are registered Percherons), is the oldest industry of the country, but it takes more capital if the business is to be large enough to be profitable. The owner is practically at no expense as the stock is put out on the open range, and the only thing that he has to do is to hire a man at the fall roundup to see that no one gets ahead of him in branding his livestock as a brand is ten points of the law of ownership. Of course in the spring he has to hire a man, or do it himself, to get his cattle together where he can get his eyes on them occasionally, for they are generally scattered over the prairie for miles. The casualties due to starvation and blizzards generally run around twenty-five percent, but the owner still has approximately seventy-five percent of clear profit. No feed of course is ever given to them except in the case of very valuable stock which are generally housed during the winter. Most of the stock are so thin in the spring that they can scarcely stand alone, and only the hardiest survive as there is no chance for weaklings. Nature attempts to provide against the rigors of the winter by providing heavy woolly coats, one horse I remember as having a coat of hair about four inches long. Unacclimated stock could not possibly survive a winter on the open prairie. On May 1, 1919, they had a terrible blizzard in the district around Calgary and eighty thousand head of cattle perished. Many cattle are killed during the course of a year by the railroads as the tracks are unfenced, seven head of cattle being killed all at once last fall

when the passenger ran into the dry herd on one farm.

The Milky Way Farm has the only herd of cows in this whole region, there being about sixty or seventy head of good Holstein cows, and it costs so much to house a dairy in this country, common ship lap being \$120.00 per thousand last summer, and labor proportionately higher or not to be had, that developments along this line is sure to be very slow. It is readily seen that there is room for more men in the business, as Medicine Hat, a thriving city of no mean proportions, depends upon these cows entirely for all of her sweet cream. All that the cows are fed is prairie hay, which is more palatable and nutritious than most timothy, and such things as pea and oat hay together with a little dried beet pulp or other concentrate of some kind in the dead of winter, as grain is well nigh prohibitive in price, and when carefully done, feeding in this way is more profitable. This ration is well balanced with an abundance of "Alberta Sunshine," the entire ration of most of Alberta's stock. In the fall the cows are allowed to pasture over the grain fields, a great deal being left by the machines in harvesting. Hogs could profitably be kept to follow after the cattle and clean the grain fields, five bushels to the acre being generally left by the binders on a dry year when the straw is so short, but housing the sows in the winter is a very expensive proposition if done properly. Most people house them rather inadequately and an epidemic of influenza spread around among the hogs of this country last year which the sows survived but which just about wiped out the little pigs. All in all the livestock business in this country has great possibilities, but the right kind of men are

needed to take hold of the industry.

I don't mean to infer that this is a country of advantages with no disadvantages, for this is not true. The winters are long and severe, the popular saying being "nine months of winter and three months of cold weather." Sunny Alberta, while an expression in a measure of the truth, is rather misleading. There is seldom a day when the sun is not shining as cheerfully as you please. It is not at all uncommon to have the sun shining directly on the thermometer and it registering as low even as 65 below zero, with a stiff wind blowing. It is true nevertheless that

be stopped after every few miles of driving and the motor allowed to race to warm it up so that it would not completely freeze. The summers, while actually warmer than those in Ohio, seem noticeably cooler on account of the low humidity, and the nights are actually quite cold. The seasons are so short that the housing period for stock is long and of course this is quite an item in general farming.

Along the irrigated sections and everywhere during years when sufficient rain falls to insure good crops, the mosquitoes compare quite favorably in number to those in the southern



A LATERAL OF AN IRRIGATION CANAL

the peculiar atmospheric conditions bring about a very small percentage of cloudy days. Of course in the winter time it doesn't start to get light till about 8 A. M. and is good and dark by 4 P. M., there being correspondingly that much more light during the summer, which makes the successful growth of crops during such a short growing season possible. You may know that it is cold when on a much milder day than ordinary, mild enough so that my father thought it feasible to take the Ford and go to town, the fan belt being off and the radiator being well blanketed, when the radiator froze in spite of the heavy pulling due to a good blanket of snow so that the car had to

swamps, altho not of the virulent type. There are also plenty of flies and at certain seasons life is rather a burden to the stock. All horses have to be protected from a little chin fly which annoys them very greatly, by means of strips of leather or something similar, which is fastened to their bridles so that they can scare the flies away by shaking their heads, in much the same way as your mother used to scare the flies out of the house with an old flour sack cut in strips and fastened to a broom stick. A horse will become perfectly unmanageable if not provided with this "fly scarer."

Birds, jack rabbits which with their peculiar flopping tails look something

like frightened goats jumping from foothold to foothold in a rugged section, as they scramble across the prairie, and other small game are quite plentiful; and over a few miles, along the river where it is more rugged, there is quite a bit of the larger game that is native of the foothills of the Rockies and the adjacent prairie. A country which is flat like this of course has many depressions where the water accumulates, and these "Sloughs" as they are called, furnish splendid feeding and nesting grounds for all kinds of water fowls, especially ducks. I have seen ducks five or six tiers deep, extending along the edge of a slough for upwards of half a mile, sitting wing to wing, literally thousands of them. Of course some of the animals are a long way from being useful, coyotes always being on the lookout for any of the smaller livestock and often getting quite bold, and the weasels often wreak great havoc in the hennery as there are plenty of them. A person will never forget the weird cry of the coyotes, when he once hears it, as they yelp plaintively to one another from all parts of the prairie some evening or even on some dark and cloudy forenoon.

Here everything is in the superlative degree. Everything is done on a large scale. For this reason tractors are quite popular but are quite expensive as compared to horses which can be fed prairie hay, had for the mere gathering if the season isn't too dry, or as is more generally done they can be turned out on the prairie for the winter, and rounded up in the spring in time for work, or late enough so that they have regained enough strength on the spring pasture to walk without staggering. If at any time they need more horses than have been broken in, it is rather

interesting to watch the simple way they have of breaking a horse. He is thrown and roped and the harness put on him, after which he is hitched to a heavy grain tank or a wagon and box with an older horse, and is then driven across the prairie as hard as a whip will make him go for three or four hours or as long as necessary, in fact till he is ready to drop, and the next day he is worked like any other horse. They have some teams that it is certainly a job to manage, especially as plowing is done with six to eight horses and other operations in a quite comparable fashion. Another big item in the cost of operating a tractor is the time lost in going to town after repairs, it often being necessary to send to the city after repairs which often necessitates a still longer wait. For a similar reason headers are not very practical on account of the high breakage even tho they would save a lot more grain on a dry year than a binder. Another custom not found in Ohio is their method of handling grain in bulk with scoop shovels and grain tanks, the tanks being hauled by hitching two two-horse teams tandem to them. As the roads are of a sandy nature there is not much trouble experienced on account of bad roads. Even a few hours after a heavy rain the soil settles sufficiently so that they are in pretty fair shape, unless there happens to be a slough, that is a slough during a wet spell, located along the road, in which case a detour is necessary.

The main thing to bear in mind is, that a country which is still undeveloped and where real estate is rapidly changing hands, with proper management furnishes a greater opportunity for the man without capital than a place where values are more stable.

(Continued on page 396)

GETTING USED TO SURPRISES

By MARIE MIRVIS, '22.

"OH, that's just the richest thing! Really I can't conceive of Bella Spaulding living in the country. Oh my!" and Mary Sommers laughed in the delicious way she had.

"It's quite true, Mary," said Rhea Davies soberly. "Bella's father has to live in the country and the family is moving to Downhurst next week."

"Poor Bella," moaned Mary. "She out there with all the rubes in creation. Imagine our Bella at a party where there are rosy-faced, awkward men who wear baggy trousers and can only dance the Virginia reel. And the girls in the country! I'm sure they must be awful. Fuzzy hair about their faces and taffeta ribbon sashes! I'm sorry for Bella."

Lazily the late sunlight of a March day filled the Sommers' modish living room. Blue tapestried chairs, blue Pagoda lamps, hard pine floors, heavy window draperies and the other furnishings conveyed the impression of wealth and luxury. Both girls were rich and accustomed to the many comforts that surrounded them.

Strange it was that they were such good friends of Bella Spaulding, whose father was one of the bank tellers in the big First National Bank down town. Bella, Mary and Rhea had attended the public schools together and when the latter had gone to a fashionable Eastern college, Bella's parents insisted that their daughter accompany her friends for at least a year. But Bella sensibly decided to go to the State University, from which institution she had received a degree the past summer.

"I've got to go now, Mary. It's already five o'clock." Rhea rose from the deep chair and taking her wraps

from Mary's languid hand she adjusted her hat before the mirror. Together they walked to the massive hall door.

"Bye, bye, Mary. You're coming over tonight? Just a few of us. Kind of farewell to Bella."

"Yes, see you later. Poor Bella! But we'll try to make it pleasant for her by running down to see her often. Goodbye, Rhea." After these words of parting Mary went to her room to dress for dinner.

Rhea's party for Bella was not a success. Bella's friends were unwilling to part with her. The sunny-haired, blue-eyed girl was one of their set not because of her money (which she did not have) but because of the wealth of fine qualities she possessed. They knew that the Spaulding's home at Downhurst would not compare with their own spacious rural places and would lack the comforts of the average city home.

"Bella, what will you do all the time?" asked Jessie Saunders. Informally grouped about her the girls were talking about Bella's dim prospects.

"I'm not worried a bit. I believe I shall find plenty to keep me busy," lightly replied Bella. Secretly her friends disagreed with her.

The next Monday the Spauldings left for Downhurst. Bella's friends surrounded her at the station and, with many tears and injunctions to write, the girl left her dear chums.

Merrily and quickly Spring days passed in country and city. Many letters were exchanged back and forth from Downhurst to the friends in the city. Mr. Spaulding was fast regaining his strength, Bella and her mother were gardening and the country was

beautiful. The letters to town were filled with descriptions of Spring woods and bustling activity.

June had come. Since that day of farewell at the station Bella had not seen her friends. The latter implored her to come for visits but the girl stayed constantly with her parents. Of course, Mary and Rhea knew that Bella hesitated to invite them to Downhurst because of their repeated contemptuous remarks of the boredom that they associated with country life. Yet when Bella announced her house party for the Fourth of July her two friends immediately canceled all engagements and hurried to see Bella.

“Now Bob, put on your most city-looking clothes.” With this order Bella invited Robert Templeton to be at the station when Rhea and Mary should arrive.

“Why not have Dick and Sam down, too?” he suggested. “It would be great to surprise the girls. So they’re expecting to meet some country jakes. Well, perhaps we are rustic by this time.”

Bob laughed. He had been in Bella’s class at State. Six foot, athletic, brown-haired, red-cheeked, he was a good country type and perhaps at first glance the girls would think him a true rural.

“Yes, that would be fun,” agreed Bella.

Richard Ashton and Samuel Blake were from State and for the summer were working on the Templeton farm. They were city fellows who were studying agriculture and were gaining valuable experience on the well-managed, modern farm of the Templetons. Happy to glimpse the expected guests, they agreed to join the others and

meet the travelers at the little Downhurst station.

“Oh, Bella, you, dear! You’re looking marvelous! Bella, Bella how we’ve missed you! Jessie’s sorry but she had previous engagements.”

Such were the confused greetings between the three girls and for a few minutes they had forgotten the boys.

“Oh, girls, meet some of my new friends,” began Bella.

To the bewilderment of Rhea and Mary three unabashed, well-dressed and sunburned fellows acknowledged introductions. Soon the six of them were conversing familiarly and without the usual constraint of the newly introduced.

Sam carried Rhea’s traveling bag and Dick was soon talking earnestly into Mary’s blue eyes. The big Templeton car bore three merry couples to the Spaulding home.

“We’re to see you ladies, this evening. In the meanwhile, au revoir,” said Bob, after girls and baggage had been safely deposited inside the cool, screen-enclosed veranda of the modest Spaulding home.

“Au revoir,” chimed the three happy girls.

Mr. and Mrs. Spaulding, Rhea, Mary and Bella enjoyed a luncheon with laughter and conversation. The reunion was complete with the latest gossip and news of city friends.

“Oh, you girls,” laughed Mr. Spaulding. “I must leave you. Mary and Rhea, come out after a while and I will conduct you through my dairy.” With this he left the dining room where the surprised city girls were trying to believe their ears.

“Your father and a dairy! We will never believe it possible,” Mary said. “And Bella, what nice country boys you have around here. I never thought

such nice young men could be found in the country. Mr. Ashton is like the boys at home."

"Yes, and Mr. Blake is just lovely," remarked Rhea.

"Come on up to my room. Let's get into some other clothes," suggested Bella, after she had helped her mother clear the dishes.

The pretty though plain little bedroom was unused to the happy chatter of three young girls. Talking and laughing they were putting on light, fluffy summer garments. At last they were all ready to go down stairs when Bella opened a bureau drawer and took

out a jeweler's box. Her friends watched her with interest, knowing that Bella seldom wore jewelry. What was Bella doing?

"Bella!" shrieked Rhea.

"Bella!" weakly from Mary.

"What is it, dears?" Bella smiled at them.

"You're engaged!"

The solitaire gleamed on Bella's left hand and the two friends looked at her.

"Is it Bob?" asked Rhea.

"Oh, you dear!" wept Mary as she kissed their friend. "I can't blame you. Even if they're country boys they're simply great!"

THE SOIL, THE STOCK, AND THE MAN

By VANCE CLEVER, '21.

(This is a story about a farmer who started at the bottom and has made good. It is of such men that we want to know and too often hear and see too little.)

WITH the present wide dissemination of agricultural knowledge, it is indeed rarely that a farmer is met who is not acquainted to some degree with the fundamental principles underlying the maintenance of soil fertility. In spite of this, the number who are following a definite, rational system of soil building is disappointingly small. Talk to them about it and they are not slow to express the reason "Yes," we will hear them say, "no doubt tiling that back field would enable me to produce much larger crops, and I suppose we should use lime and more fertilizer than we do, but where is the money coming from to pay for them? All ready I am in debt on my farm; suppose I borrow money for these purposes: farming is pretty much of a gamble at best; next year we may have crop failures or the price of farm produce may slump as it did last fall on hogs. Then if I have my credit already strained where am I to get the money to make my pay-

ments? Soil improvement is the right thing when one has the money, and I expect to practice it some day, but a fellow in my condition must play safe."

Granting that we, as a class, are often too conservative for our own good, when we read that according to the 1910 Census figures 33.6 per cent of the farms of U. S. operated by owners were mortgaged, we are almost convinced that many are justified in adopting this attitude. A discussion of how C. R. Smelker of Darke County, has increased the fertility of his farm, although financially handicapped in the start, and at the same time saved money with the aid of his live stock may be of interest and value to some who have similar problems to face.

According to economists, who have studied the problem carefully, the highest labor incomes are as a rule secured where thirty to forty-five per cent of the income comes from the sale of crop produce and the remainder from animal

products. But live stock farming is not necessarily profitable. Recently a farm survey was conducted in Greene County by the Farm Management Department of Ohio State University, in which seventy-three of the "more efficient and best organized farms of the county" were studied, and on one-third of these picked farms, the average return per \$100 worth of feed fed to productive livestock was \$99. But the average return from the one-third of the farms with high returns was \$177. Where would you rank?

But to get back to Mr. Smelker's case, when less than ten years ago, he

bought the farm where he now lives, joining the 33.6 per cent of mortgaged land owners, there was plenty of room for soil improvement on it. At that time twenty bushels of wheat to the acre was considered a good crop for the farm, but under Mr. Smelker's care, a yield of forty bushels to the acre has been secured on two different occasions, and yields of other crops have increased proportionally. A rotation of corn, wheat or oats, and clover has been followed, applying about fifteen tons of manure to the acre on the sod before plowing, and then 200 pounds of acid phosphate per acre on wheat.

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POTATOES AND POWER FARMING

By CHARLES H. SPRAGUE.

(Mr. Sprague was a former business manager of the Student. He is now connected with Cleveland Tractor company and in this article discuss advantage of handling potato machinery with a tractor.)

POWER farming is a subject of intense interest to every farmer today as they realize now more than ever before that to farm more intensely and to produce larger crops more economically, more power must be used. Horse and man power are very much limited when it comes to practicing the more intensive methods of agriculture and it is apparent that the farmers in every section of the country are getting the power farming idea as they realize that the tractor saves time, men and money; it gets results. Not only that but it makes farm work easier for the farmer and his family, and does it more cheaply and better than other sources of power. Power farming can truly be practiced by the potato farmer to a greater extent than is possible by many other farmers who specialize in other special crops of agriculture. It is possible for the potato farmer to raise his crop entirely with the use of the tractor. That this fact is taken advantage

of is shown by the great popularity of the tractor in the great potato producing sections, as farmers in these sections have been quick to see the advantages of the tractor for this work. Several years ago the tractor was a small factor with the potato grower but in a short time its merits were soon discovered and today they are a common sight on potato farms. Farmers seem to agree that the small crawler type is peculiarly adapted to potato culture as is evinced by the fact that there are over 300 of these machines in a single county well known for its potatoes.

The tractor permits of deeper plowing which is so important for potatoes grown in most soils. A deep soil holds moisture better than a shallow one and our more productive potato lands have been made and have been kept deep by proper plowing. The deep seed bed also gives the roots an opportunity to easily penetrate below the line where the tu-

bers form, which is usually not more than four inches below the surface. If the seed bed is only four or five inches deep and the bottom of the furrow is inclined to be hard, the roots, seeking the easiest course will spread outward instead of downward, and in case of dry weather will suffer or if deep cultivation is practiced the roots are apt to be pruned. In some potato sections the winters are cold and long; the ground freezes in the fall but is drawn out by the snow during the winter, hence when

tact between the bottom of the furrow and the seed bed, and mixes thoroughly throughout the seed bed any trash that may be on the surface, and also pulverizes all the lumps. By the use of a ten foot double disc approximately thirty acres could be covered in a day with the fast light tractor. Compare this with the time it would take with horses with a small harrow and going at a slow pace, and we understand one of the reasons for the popularity of the tractor.

Planting potatoes has usually been



ON THE FARM OF E. C. SCHROEDER, POTATO KING OF THE NORTHWEST

the snow melts around the first of May, the ground is ready to work and the time for planting the crop is short. The work must be rushed so the crop will mature to catch the early market and to force the horses that have stood in the barn all winter as such a heavy pace would be impossible. The tractor can step in at this peak load season and assure an early planting.

Harrowing is another important job for the tractor. Not only can the tractor be used to advantage for harrowing the soil after plowing but also for harrowing the land before it is plowed. This causes a compact con-

sidered only a job for horses but today many potato growers are making use of their tractor for this operation, and not only pulling a single planter as is the case with horses but pulling two planters. Thus better use is made of the power of the tractor, and the planting is greatly speeded up. In most sections it is of great importance that the crop be planted on time so that the grower can get the benefits of the early market.

While the cultivation of potatoes has not generally been practiced by many of the growers with tractors, the

(Continued on page 400)

A COOPERATIVE THRESHING ASSOCIATION

By PARKER HESS, '22.

(Mr. Hess has had experience with the organization of this association and gives some valuable suggestions.)

IN years passed it has always been the practice of the farmers in our community in Clinton County, southwestern Ohio, to employ a "custom outfit" to do the threshing, shredding and clover hulling. A "ring" of farmers was formed to secure the outfit and the necessary help. This plan has worked more or less satisfactory; though there was always dissatisfaction and disappointments from one cause or another. Last wheat harvest came the climax which resulted in the purchase of a community outfit.

We had bargained with a machine man to do the threshing in the ring. He owned a rather large new outfit which he was supposed to send to our neighborhood; but owing to the demand for machines to thresh the large acreage of wheat, he planned to send this good outfit to a more acreage ring; while we were to get an old machine reputed to have been formerly relegated to the scrap heap. These things were proven to be facts at a meeting called, so a committee was appointed to notify the owner that we no longer expected his services.

In the meantime some of the more energetic farmers of our ring had viewed a complete outfit which was for sale because the owner was physically unable to operate it. The owner agreed to deliver and operate the separator to our satisfaction; also other machines in their season if we so desired. \$2500 cash was his price for the outfit, which consisted of the following: Advance single cylinder, 16 H. P. engine; Advance separator, large size; Birdsell clover huller; 10 roll McCormick corn shredder, almost new; and a water

wagon; all in good serviceable condition.

As some wheat was already in the shock, it was no time for extensive argumentation and delay, so the outfit was purchased after a short, though thorough investigation, each of the 17 members paying \$150, which amounts to \$2550, thus allowing a margin of \$50 above the cost, for the starting out of the machine. A constitution was drawn up and adopted naming the ring The East Fork Threshing Association, and providing for a president, vice-president, secretary, treasurer, and a business manager. The duties of the business manager include the complete control of the machinery, and the hired help to operate it.

The working agreement being the most important part, more space should be given to it. Before starting, however, I assure you that this agreement was not made in one night, but rather, after considerable friction had developed during the operation of the machine. Among other things the working agreement contained the following rules: Each member shall help with his home force, another member when called upon, and no difference shall be made in changing help, between a team and man but all excess over two hours, in changing shall be paid for at 35 cents per hour, per man, the time the machine is in operation to govern. The beginning of threshing to alternate ends of the ring each year so that a member will be first one year and last the next year; to decide whose job is next, the position of the member's house, not the field of grain or the place to thresh, is used; excepting the men

with the machine, no meals except at noon shall be served; no member shall require his help to return to the field for another load after 6 P. M., except when it is possible to complete the job that evening; in case of breakdown no one is to be paid for his labor in repairing machine unless he be employed by the business manager; no work shall be done on Sundays, Fourth of July, Thanksgiving, Christmas, or on election day after 3 P. M. These rules must of necessity be changed as conditions demand, especially as labor prices fluctuate.

Since several of the members are renters, the constitution provides that before a member can dispose of his share, the association be allowed an option on the share at the price quoted to the outsider, thus the association can control the length of the ring and the members therein. The constitution further stipulates that no work outside the ring shall be done until all the members have finished; and that for all work done for members and others, the

prevailing prices per bushel charged by other threshermen be paid into the treasury, and at the end of the season a meeting shall be called at which the surplus above expenses shall be divided equally among the owners of a share.

The following is the number of bushels, the price charged and amount received; also expenses and profit:

Wheat, 13,694 bushels at 10 cents, \$1,369.40; rye, 1,067 bushels at 11 cents, \$117.37; oats, 531 bushels at 6 cent, \$31.86; timothy, 8 bushels at 50 cent, \$4.00; total income, \$1,522.63; total expenses, \$462.43; profit, \$1,060.20.

The shredding, while a success, was not the paying proposition that threshing was, owing to the unfavorable weather and the poor yields. The clover hulling was done at a small loss because of the small acreage and low yield.

As a whole the association was a highly profitable organization and we look forward to years of satisfaction and profit in its cooperation.

HORSEMEN WE ALL KNOW

By C. F. MOSES, '22.

EVERY student in the College of Agriculture, and every one who has been a student in the past ten years, knows Robert Watson. The interest he takes in the horses under his care, and the conscientious way in which he does his work, have won the admiration of the students. The faithful way in which he carries out the plans of Professor Kays is one of the factors that is making the University horses so favorably known.

Mr. Watson was born in Lanarkshire, Scotland, in 1884. On leaving school he began working for Lord Cawdor of Cawdor Castle, North Scotland. Here he worked nine years. His father,

who is Farm Manager for Lord Cawdor, trained him in the proper feeding, care, fitting for show, and exhibition of horses. It was while working with the sturdy Clydesdales of Cawdor Castle that he gained the experience that makes him so valuable in his present place. During the last three years he spent in Scotland he handled stallions during the breeding season for A. W. Montgomery of Nether Hall, James Kilpatrick, and Mathew Marshall. The work he did for these well known Clydesdale breeders rounded out his experience.

In 1910 he came to America with

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“THE TIE THAT BINDS”

“A university is just as strong as its alumni. Although organized for the purpose of instruction of students, the biggest measure of an institution's success in that work is the mark made by those students after graduation. The older a university is, the greater the strength it derives from the accomplishments, interest and contributions of its old grads and former students.

“Therefore, any organization that ties up the alumni to a college is a most vital one. The Ohio State University Association performs this function here, and without it a big chunk of this institution's backbone would be taken away. It undertakes various moves that are important for the University's growth. Recent instances are the efforts for the stadium and increased sums for the instructional force.

“Soon the Seniors will go out from their Ohio State. A member of any

organization will recall how much value his group has always placed on the advice and interest of a former student who has gone forth and bucked the world. He should consider his chances of rendering the same service to the undergrads, 5, 10, 15, 25 years from now. The alumni association helps him to do this much and also keeps track of the men and women who leave the campus, furnishes them news of the University and their classmates, and draws them back for class reunions.

"Joining the alumni association is a definite expression of the love the Seniors have for Ohio State and their desire to carry it with them always. Wherever they go, whatever they do, they will be indebted in some way to this University for their success."—*Ohio State Lantern*.

BARE FACTS

It is not uncommon today to see large headlines in the newspapers announcing the accomplishments of a man who has raised 100 bushels of corn on an acre or made some similar record regarding crop or livestock production. It is just and right that these attainments should be published because they show some of the possibilities of our farmers which may be accomplished through proper study and management.

But did you ever see a man's picture on the front page of a newspaper with large printing beneath it stating that this fellow raised 17 bushels of wheat per acre or 370 bushels of corn on a ten acre field or that he owned a cow which produced 4,000 lbs. of milk during 12 months? Yet these are very near the average conditions as they exist in Ohio and there are just as many who fail to come up to this average as there are who surpass it. It is the uncommon occurrence and the feature article which attracts attention, and too often the readers, who may have very limited knowledge of the actual farming conditions, form the idea that every acre of wheat produces 60 bushels of grain, every 10 acre field of corn 1,000 bushels and every hog sold off the farm has simply "grown up" and yields almost wholly a net profit. When we see the situation from this angle it is not surprising that the farmer is accused of being a "profiteer" by well meaning but misguided people.

When the high cost of living is discussed the thing that always comes to our minds is the cost of food produced and as a result the producer gets the blame. Just stop and figure for a minute on these high prices and compare them with the prewar prices, remembering all the time that the cost of feed has increased over 80%, farm labor more than 100% and still worse, cannot be obtained at any price. Attracted by the high wages, short hours, and social conditions, young men are rushing into the cities and leaving the rural districts to care for themselves. And what is the inevitable result? Scattered throughout the state this summer will be fields untouched by the plow not because of the high wages demanded for farm labor but because farm labor cannot be secured.

Home Economics Department

MODERN TENDENCIES OF THE HOUSEHOLD

IN speaking of the modern tendencies of the household, it is necessary to take into consideration that the household is in a transitional or revolutionary stage. The factors at work in causing this state of affairs are the unsettled condition of real estate values, the question of owning versus renting, the extra domestic employment of women in recent years and the question of home service. The evolution through which the household has been passing since medieval times seems to have come to a head as at the times of the first and second industrial revolution, as a definite change in the household system due to the above mentioned elements.

One cannot at the present time put his finger upon any set of figures and say there is a greater tendency toward owning than toward renting for there is a constant shifting of people from house to house which is very much like the game of "musical chairs" and some families lose a home altogether in the shuffle. The housing question presents a critical aspect to society as this crowding of people tends toward cooperative housekeeping which is a failure for families are essentially uncombina-ble. Often boarders and lodgers are taken to help meet the rent.

The advantages of owning a home seem quite clear although there are those who seek to avoid property taxes by renting, but they are building their homes upon the sands. When taxes are raised rents of necessity rise also to meet the extra burden placed upon the property, and so with the repairs.

Hence upon the tenant falls the burden no less than upon the landlord. Then there is the insecurity of tenancy, the recurrent burden of moving, trying to accommodate oneself and one's children to new neighborhoods, schools, churches and entirely different environments and the unwillingness to fix up the other fellow's property even to the extent of discommoding oneself. Add to all this, the splendid benefits from owning one's home and the petty arguments against owning your home will fade away.

With the war came the increased desire on the part of woman to enter industry. The war and the vacancies left by the men going into national service gave woman her opportunity to prove herself. Much of her previous limitation of thought, impulse and activity was due to preconceived, erroneous ideas as to the influence of her sex factor upon non-sexual functions of life. That sex is an incident and is neither organic nor fundamental, woman proved to herself and others during the stress of war.

With the entrance of women into industry and their more efficient organization against exploitation by men, those previously engaged in domestic service find the hours and pay much better in factories and shops and industrial service generally than in the home. The homekeeper then who might previously have left some of her household duties in the care of a maid or domestic would now experience great difficulty in finding anyone with whom she could entrust such responsibility. The "Van-

ishing Housemaid" forms subject matter for a great many poems, parodies, and epitaphs.

Beginning to trace the household system from mediaeval times, we have first the manorial household or the "great house" in which man produces for home consumption and all processes are carried on upon the estate. Here the household is the unit of production as well as consumption. With the industrial revolution the factory system takes industry out of the home. But we find that many of the home processes remain in the home, viz.—spinning and weaving of linens for home consumption, the weaving of woolen coverlids, piecing, patching and quilting of bedspreads, working of samplers, embroidering of pictures and wearing apparel and the making of dyes and dyeing threads. Now these processes have been completely removed from the home. Today under the stress of poor service, the desire of woman for economic independence and so forth, still more of these processes are being taken from the home. Evidences of this may be found in almost any home magazine. Among the advertisements there is a predominance of prepared foods (some of which claim even to save you the labor of digesting your own breakfast foods), mechanical and electrical labor saving devices, built-in furniture, washable floors and walls, until it would seem that there was absolutely nothing left for the housewife to do. The electrical devices are among the most striking of these pictures of a woman in street attire pausing for a moment on her way to push the button which does her laundry for her and so on. Washable walls and floors are quite the vogue but who is to wash them and who is to clean the curtains and upholstery. Even these cleaning processes are about

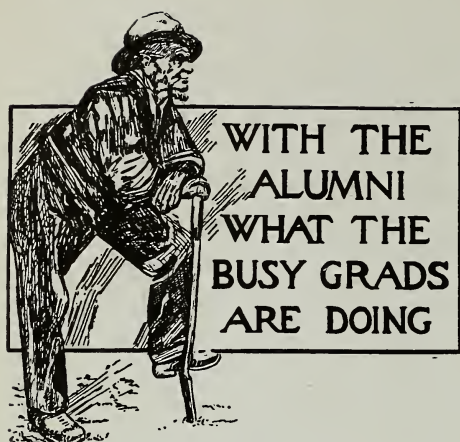
to depart from the hands of the housewife. She either sends them out or a cleaner, an expert charging expert prices comes in to perform this task. The laundry may be sent away and is returned in a few days washed, ironed and perhaps with the buttons sewed on, perhaps not.

Community eating is thought to be the solution for the housekeeper with duties outside too numerous to permit of housekeeping, but its success is yet to be proven. One large question as to its effect upon family unity remains. Mrs. Charlotte Perkins Gilman, an ardent advocate and extremist on the subject of the so-called emancipated woman, declares that a family unity bound together by a table cloth is of doubtful value. But it cannot be denied that the emancipation of woman with its accompanying household conditions is having its large part in the increasing number of divorces in the United States and the increasing instability of families.

The questions arise then, should women leave the home sphere to go into industry and what is to be their plan of house management if they do. The women who really owe it to themselves and society to engage in some economic activity fall into five classes: girls between the periods of schooling and marriage; those with some transmissible disease who should never marry; women geniuses whose careers would be lessened by household cares and motherhood; married women without children; and women whose children are reared and independent.

What the value of your time? Women generally remain more or less oblivious to the fact that even in their own homes they are an inseparable part of the great labor body, they fail to

(Continued on page 394)



F. B. Cross, '16, has been assistant horticulturist at Stillwater, Okla., and has now accepted a position as county agent in an important fruit section of New Jersey.

C. M. Sallee, '16, a member of Rock of Marne regiment, has been employed by a Pittsburg commission firm. He was sent to Aroostock County, Me., to buy potatoes. He contracted typhoid fever and spent seventy days in the hospital. He is now at his home in Pittsburg, where he is recovering and expects to be out in a few weeks.

C. R. Runyan, '15, has been with U. S. bureau of markets and is now in charge of their Columbus office.

C. G. Carpenter, '14, with the bureau of crop estimates, reports the birth of a son at a recent date.

V. H. Davis, '00, former professor of horticulture, has been in charge of the state bureau of markets. He has now resigned to take charge of a large orchard at Catawaba Island. The orchard is owned by a company, of which he is head.

N. W. Glines, '16, recently accepted a position in the extension department of Ohio State University as a vegetable specialist.

W. T. Owry, '15, now with bureau of plant inspection, stationed at La-

redo, Texas. He is looking out for cotton insects from Mexico.

Benjamin Repp, '14, has been teaching at McClure since his return from the army.

V. E. Brubaker, '12, county agent in Wisconsin, recently sent a well written and illustrated bulletin, describing his county.

George B. Renshaw, '18, was married shortly after return from France, and is now in fruit growing with his father near Lancaster.

B. D. Drain, '17, is located at Massachusetts Agricultural College at Amherst, where he is assistant professor of pomology.

M. E. Corotis, '08, has been engaged in real estate business in Columbus for a number of years. Has recently moved his office to larger quarters and now has six salesmen associated with him.

C. A. Dawson, '15, recently returned from India, where he had been teaching in a boys' school for four years. He will leave for Africa to manage a thousand acre farm.

W. F. Gahm, '14, has been county agent of Scioto county for the past three years.

H. G. Phillips, '16, is operating an orchard near Lisbon and has been recently married.

H. L. Peck, '12, is a successful fruit grower at Coleman Falls, Va.

George Livingston, '09, has been appointed chief of the U. S. bureau of markets.

Glenn Foster, '05, is operating a farm at Mt. Sterling, Ohio. He is specializing in the production of beef cattle.

Harry Beale, '02, who is managing some 1000 acres of land at Mt. Sterling, is also treasurer of the State Federation of Farm Bureaus.

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MODERN TENDENCIES

(Continued from page 391)

realize that whenever labor rises in price, their time is worth just that much more. Does the housewife ever think of the time she spends doing her daily home tasks in terms of money value? Does she ever consider her own maximum and minimum wage? We hear so much now of the so-called labor and most of us realize that it is the most expensive commodity upon the market. I have known many a woman to refuse to pay thirty cents an hour for help with her housecleaning on grounds of economy and then pay the equivalent of seventy-five cents an hour for some task she could have performed herself if she had the time. Why did she do it? Because she never stopped to figure it out.

The question then arises. Is it not then cheaper to hire these things done and allow the housewife to become engaged in some more lucrative position? The woman who has no family or merely a family of two has less a problem than the woman with children.

Breakfast is a comparatively simple proposition with prepared breakfast foods, fruit and some beverage, which is plenty of breakfast for the average family. The family simply must have orderly habits so that the picking up and putting away processes amount to

very little. A swish of the dust cloth and dustless floor mop and the house is presentable for the day. Very rarely does the family of adults find time to come home for a midday meal so that at evening they return ready for the family meal. If the housekeeper is extraordinarily tireless and efficient, she prepares the evening meal perhaps with the aid of a fireless cooker or Aladdin over, or if she is fortunate, it is ready to serve, having been prepared by a cook. Otherwise the family "eats out" or in some communities the community kitchen serves the meal hot at meal time in her home involving a little extra cost and requiring very little labor to serve and wash the dishes afterward. The laundry and cleaning of other fabrics may be done outside the home but in very few cases is this satisfactory as the wear upon the garments is great and the appearance is often fearful to behold. The other cleaning processes may be performed by the woman in her leisure time, such as perhaps on Saturday afternoons. The result of such a routine is too likely to be a tired jaded mother too fagged to be an interesting companion to her family and home ties are weakened as a consequence. There is an attempt on foot to raise the standard of house service by the following methods: more respectful attitude taken toward the domestic servant, bet-



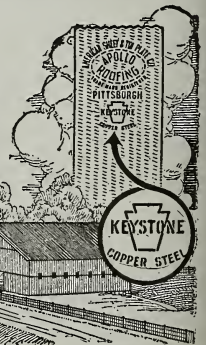
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Both farm and city property owners need to know the absolute safety and service of metal roofing.

APOLLO-KEYSTONE Galvanized insures durability and satisfaction for all forms of sheet metal work, including Culverts, Tanks, Flumes, Spouting, Garages, etc. Sold by leading metal merchants. KEYSTONE Copper Steel is also unequaled for Roofing Tin Plates. Look for the Keystone added below regular brands. Send for free "Better Buildings" booklet. AMERICAN SHEET AND TIN PLATE COMPANY, Frick Bldg., Pittsburgh, Pa.



THE SOIL, THE STOCK, THE MAN

(Continued from page 383)

That improving the soil has not taken all the farm could produce is indicated by the improvements which have been made about the buildings and the air of prosperity which one observes. A straw shed with covered barnyard to protect the manure has been built and an electric lighting system is installed, lighting the house, barn and out buildings. The current produced is also used to operate the cream separator and washing machine. Hot water and cold water in the house further relieve the drudgery and add to the joy of living.

But these improvements have not been made by following the methods of the average farmer. When he came to this farm Mr. Smelker had four head of rather mediocre pure bred Jersey cows. He decided to let pure bred cattle pay his mortgage, and began building up his herd by buying the best bull he could afford. While this first one could not compare with the splendid individual which now heads the herd, he was a good animal, out of R. of M. sire and dam. He has continued buying the best that he can afford, and has found a good bull to be more than half of the herd. Sultan's Southwest Majesty who now heads the herd has some splendid records back of him and at the fairs where he was shown last fall he took first in his class at Xenia, London, Knoxville and Chattanooga: second at Ohio and Tennessee State Fairs, and fourth at Indiana and Kentucky.

When I was at the farm last December the other side of the herd was represented by eleven cows giving milk, every one of which was on Register and Merit Test.

In all about twenty head of cattle are kept. One has only to look at this herd

to be convinced that it is not necessary to sacrifice production in order to secure dairy type. The heifer calves are raised and kept until they have completed their R. of M. test, and the bulls are sold on a satisfaction guaranteed basis when a few months old.

This is by no means a dairy farm to the exclusion of other types of farming. Twelve brood sows are kept and an average of about 150 hogs sold each year. Mr. Smelker stated that the hogs and the wheat just about paid the farm expenses leaving the cattle to bring in the profit.

While the cows are well cared for, the very sensible plan of providing conveniences for the home and family first is followed, and so far, very little expensive equipment can be charged against the herd. The stanchions and concrete work of the stable are home made, and practically all of the feed consumed is raised on the farm, disproving the idea so commonly expressed that only the wealthy city farmer can provide for good pure bred stock.

This is not meant as an argument for Jersey cattle nor for any other particular breed of live stock. It is an argument for good live stock, good common sense, and industry, a combination guaranteed to put fertility into the land, money into the pocket, and satisfaction into life. Try it.

A NEW SOILS PUBLICATION

The feature article in the maiden number of the Fertilizer Green Book is a very interesting article by Prof. F. E. Bear on the Growing Importance of Fertilizer. This magazine is being edited by E. S. Hanson, and published by the Complete Service Publishing Co., of Chicago, Ill. Apparently it is a magazine deserving of encouragement.

ter training for service, an eight hour day and better living conditions for the domestic in our home. Until this problem is solved, difficulty will be encountered in any scheme of house management in any class of society because of the effect upon the family. No sudden revolution will accomplish any change but the struggle for existence of the family unity will be won by the survival of the fittest household systems and as in any evolution, time alone will show which are the fit. In the meantime, the woman having accepted the duties as a homemaker must fulfill her contract by trying to see her outside occupations in proper perspective to her family and through her family to society.

Miss Edna N. White, formerly head of the department of home economics at Ohio State University, and Miss Margaret Sawyer, of Washington, national Red Cross dietitian, have been in Columbus in connection with the survey of social agencies in Columbus, which is being conducted by the American Red Cross. They were assisting Fred C. Croxton, who is assistant general manager in charge of the service organization of the Red Cross.

Mrs. John Redwood Fisher (Dorothea Canfield) daughter of Dr. James Hulme Canfield, former president of Ohio State University, gave an illustrated lecture in the chapel, April 16, on "Some Aspects of French Life as Compared with American," under the auspices of the College Woman's Club. Mrs. Fisher received her degrees of Bachelor of Art and Bachelor of Science in Home Economics at Ohio State University.

The State Board of Education has raised the salaries of teachers of vocational agriculture from \$1800 to \$2000 and \$2500.

AGRICULTURE IN ALBERTA

(Continued from page 380)

This is a place where a little money may go a long way, but the man without any is almost helpless, as there are plenty of places for all of the backing available, and naturally the men who have already made some measure of success are the favored ones. However, this is a country of extremes.. A Mr. Preston, near Lathom, who owned about five thousand acres of land and let it revert to the C. P. R. in default of payment, on account of too many dry years in succession, lost over \$100,000.00. The terms were ten percent down and the rest within twenty years, interest being at two percent the first two years and six percent thereafter. On the other hand there is a man near Lethbridge who has two or three irrigated sections, and who has accumulated over \$100,000.00 during the last four years, raising pedigreed seeds. He keeps his tracts free from weeds by fallowing and other methods, and this is quite a difficult thing to do as the Russian Thistles, one of the main offenders, when they are mature are brittle, the wind breaking them off and rolling them across the prairie much like it would our tumble weeds or grass in Ohio. The Russian Thistle bouncing over the prairie with a good brisk wind behind it, scattering seeds everywhere in its path, has become almost an emblem of the country. Fences do not furnish any obstruction, for they pile up on the windward side like drifting snow behind a board fence, until the others are able to roll up over the fence and continue their journey of ceaseless rolling and bouncing, no field being exempt. You may know that they do not lack motive power when I tell you that the force of the wind was

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"When my cows went dry I even feared that some bad effects would be revealed after freshening. However, I was surprised to find that after freshening my cows milked more evenly on all four quarters than they ever did when milked by hand."

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"The milker was just as willing to work three times a day as twice. It never kicked and has never refused to work when I wanted to use it since the day it was installed in my barn. At the end of four years continuous use I am free to state that I find milking with the Perfection more satisfactory than hand milking. And the Perfection makes it easier to secure hired help and to keep the help in good humor."

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PERFECTION MILKER

great enough so that a row of posts was snapped off by its force where the thistles had wedged against the tight barbed wire fence around the barnyard so that the wind had a chance to try its strength. On the other hand those same thistles when cured for hay are really very palatable, and often furnish the only available native feed on a dry year, but they are such a pest that eventually some cultivated crop will have to be raised, as even now they have become so troublesome in some places that fallowing is necessary.

But with all of its disadvantages the country seems to hold a certain fascination for people, and anyone staying there for a few years is an Alberta Fan for the rest of his life. The country seems to be so vast and commodious that when you go anywhere else, you feel cramped and want to go back, and most of them do.

PRESENT DAY

DRAINAGE PROBLEMS

(Continued from page 374)

takes that work against economy in drainage construction. Stating it in another way, we should put the right drain in the right place and in the right way.

The first step is to make a definite and complete plan. No matter how little is to be done each year, the plan should be made first. A complete drainage plan for an average farm requires a careful study of conditions and requirements, as well as many measurements and observations. It will usually pay to invest in the services of an experienced person to get this work done properly. The plan should include schemes for draining the whole farm without regard to the time when the actual work may be completed. As

each bit is done each year the plan should be followed exactly, putting in first the drains that will do the most good, but, putting them where the plan says they should be. When the last drain is laid, the drainage will be complete without duplication or extra cost. We cannot over-estimate the importance of this complete plan.

Long lateral lines and short mains tend towards economy in the drainage plan. Main lines are larger, are laid deeper, and cost more than lateral, collecting lines. For that reason they should be as short and as few as possible. Long laterals give opportunity for faster work, less bends and connections need to be made, less double draining is done, and they are better adapted to the use of the ditching machine, as it can go straight along with fewer starts and maneuvers. Regularity in the scheme of drainage will promote the use of long laterals and short mains.

The efficiency of a drainage system may depend altogether upon its outlets, of which there should be as few as possible. One outlet for the whole tract is best. With only one outlet to make, the chances are that it will be given better construction and care, and it will require less attention and expense to maintain. Good depth, good tile, good grades, and careful attention to detail, all tend toward the ultimate economy and efficiency of drainage system.

The price of drainage is going up and it is becoming more difficult to get it done, but these facts should not be allowed to lessen the amount of draining that is done. Drainage still is, like it always has been, the basis of crop improvement. Good seed, fertilizers, tillage, are all wasted if drainage is not there first. Drainage still pays.

POTATOES and POWER FARMING

(Continued from page 385)

limitations have generally been due to the tractor and not to the inclination of the grower. As potatoes are usually planted from thirty to thirty-five inches apart, it takes a small tractor that can readily straddle the rows without injuring the plants to successfully accomplish this work. Today we see a growing number of farmers using the two row cultivator with their tractor, and those who have tried it are enthusiastic over the tractor for this work.

Again, we see the tractor used during the spraying operations for hauling the larger spraying outfits that cover anywhere from eight to sixteen rows at a time. The same qualifications hold true for this operation as for planting, namely, that the tractor must be able to conveniently straddle a row or two rows without injuring the plants. While farmers have not generally been using their tractor for the spraying operations, nevertheless they are gradually adding this to their list of operations that will tend to keep the tractor busy which means greater returns on their investment.

Probably next to plowing and fitting the ground the tractor finds its greatest popularity in digging potatoes

as this is an operation that requires a considerable amount of power. This is true because the potato digger must lift the potatoes with a section of soil about six inches deep and twenty inches wide, in various states of physical condition, and separate the potatoes from this soil and whatever weeds or trash are present. The tractor greatly speeds up the time necessary to harvest the potatoes, not only because of its greater speed, but because it can be operated continuously for many extra hours. That a good traveling speed is an advantage when pulling the potato digger is emphasized by the remark of one farmer when he stated, "The higher speed of the tractor prevents stones from lodging between the point and the riddle, which, as you know, is the reason for so many stops when the machine is drawn by horses." Two diggers can advantageously be drawn by the tractor and the harvesting greatly speeded up. A special hitch is required which can readily be made by the farmer mechanic.

The tractor makes a very adaptable machine for the potato grower as it is possible for him to use his tractor from the fitting of the ground to the harvesting of his potatoes. He is able to keep his tractor busy day in and day

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PREPOTENCY

"Having a preponderating power or influence."

The fact that Finderne Pride Fayne, himself a son of a world's champion long distance cow with over 28,000 lbs. milk in a year, has produced a four-year-old daughter with over 27,000 lbs. milk, proves to us most conclusively and should convince the most skeptical that he truly is

A Prepotent Sire

This is something that should influence you very largely in the selection of your herd bull and do not forget that Finderne Pride Fayne has a greater percentage of daughters in the 30-lb. class than has any of his noted ancestors which include such bulls as Hengerveld De Kol, Johanna Rue 3d's Lad, King Segis and King Fayne Segis. He is the direct result of three world champion cows having each been bred to a son of a world champion.

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HERCULES DYNAMITE

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Help is scarce and wages high, but you can dig new ditches, widen or clean out old ones quickly and economically with dynamite. A row of holes bored, one or more cartridges placed in a hole, an electric current released—and a surprisingly even ditch, with no spoil banks results.

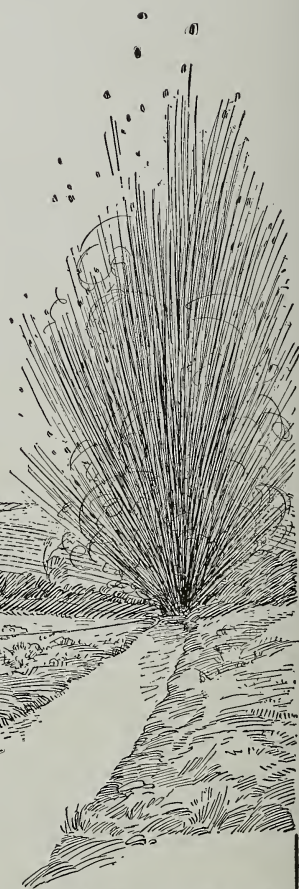
A customer in Craighead Co., Arkansas, who had dug miles of ditches with Hercules Dynamite, says, "We prefer blasting a ditch to any other method of making one. We are glad to recommend your explosives to anyone for this purpose."

Hercules Agricultural Service Men have blasted ditches from 15 cents to 40 cents a cubic yard, varying with soil, labor, and other conditions.

Our Agricultural Department will gladly advise you as to the kind and amount of explosives for your work. "Progressive Cultivation", a 68-page booklet tells all about the use of dynamite for ditching, stump and boulder blasting, tree planting, and subsoiling.



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Gentlemen: Please send me a copy of "Progressive Cultivation." I am interested in dynamite for.....

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out during the growing season and reduce the overhead on his investment which means lowering the cost on the different operations.

LOW CROP YIELDS FOLLOW FARM CATTLE DECREASE

That the steady decrease in number of farm cattle in the state has made it necessary for the farmers of Ohio to purchase large amounts of commercial fertilizer is pointed out in a recent bulletin from the Ohio Experiment Station, Wooster.

Director C. E. Thorne, of the Ohio Station states that from 1870 to 1910 there has been a steady decrease in the number of farm cattle, the total loss amounting to the equivalent of 500,000 cattle while there has been an increase of 3,500,000 acres, or 50 per cent in the area under cereal and hay crops. The yield of corn has been maintained at an average of only 37 bushels per

acre; wheat has increased a few bushels per acre on the average but the acreage has decreased by 1,000,000 since 1870.

The annual expenditure for commercial fertilizers in Ohio has reached almost \$4,000,000 for the past 10 years. This was pay for 350,000,000 pounds of fertilizers yearly.

Director Thorne points out that the manure produced by 500,000 cattle would contain about the same quantity of phosphorus and more than ten times as much nitrogen and potassium as has been purchased in commercial fertilizers each year.

A bulletin, describing the fertility program for a 100-acre Ohio farm is mailed free to residents of Ohio on request to the Experiment Station, Wooster. The bulletin deals with necessary expenditures in fertilizing crops to make farming profitable for both tenant and owner of farm land.

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HORSEMEN WE ALL KNOW

(Continued from page 387)

seventeen Clydesdales for McClay Brothers of Janesville, Wisconsin. He worked there until he came to Ohio State University April 2, 1911. From that time to the present he has been working with the horses of the department of animal husbandry, where his experience and dependability have made him a valuable man.

Mr. Watson's chief interest is in the University horses. There are at present twenty-three pure-bred Belgians and Percherons here. They are being steadily improved, and have made a fine record at the shows. Among other winners in 1918, Margot was junior champion at the Percheron Breeders Show held in connection with the National Dairy Show. Some last year's winnings are: Woodrow Wilson, Junior Champion and Reserve Grand

Champion Belgian stallion, at the Ohio State Fair; Belgian stallion and filly futurities; first and second on stallion's foals, by Libretto; and others of equal importance.

"Dope," the pride of the University, is nursing her sixth foal. She has been a prominent figure in the shows and is well known to breeders over the country. Last year she secured further triumphs.

Professor Kays is trying to do something very much worth while with the University horses, and Mr. Watson is carrying out his plans as only a conscientious and experienced man can. When we admire the splendid condition of the University horses at the shows we should think of the man who had so much to do with the work of fitting them.

It is a privilege to know Mr. Watson. He is quiet, modest, and industrious.

"Not a Fad"

Sanitary cleanliness is not a fad of the modern dairyman, but is proving as necessary to the manufacture of high grade milk products as the careful selection of raw products.

Moreover, the demand for fresh, wholesome, sanitary cleanliness will not have a brief existence, for it is a necessity of growing importance.



That the sanitary cleanliness obtained by the use of

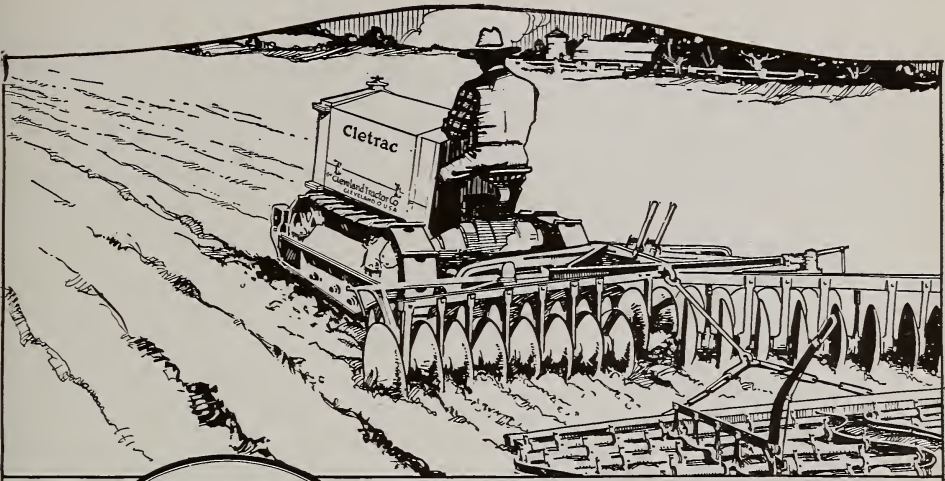
Wyandotte
Dairyman's
Cleaner and Cleanser

is of exceptional value finds proof in the increasing number of creameries and cheese factories that are standardizing this cleaner for all their cleaning operations.

The value of Wyandotte Dairyman's Cleaner and Cleanser consists not alone in its efficient cleaning qualities, but also in the fact that it proves very economical. Order from your supply house. It cleans clean.

The J. B. Ford Co., Sole Mnfrs.,

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Wheels on a track — the
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Soft Ground Doesn't Stop Cletrac

FROM January to January the Cletrac takes on *all* the hard jobs over soft, wet ground or mellow seed-beds. It never sinks in or packs but rides lightly and easily over soft soil and turns practically *all* of its ample power into direct draw-bar pull.

The Cletrac not only plows but does quick, thorough fitting that leaves a clean,

clear seed-bed, gets all crops in on time and insures bigger yields.

This fast, light-footed tractor is putting business-like system into modern farming. May we send you information about the Cletrac? You will be choosing your own tractor soon or will be called on for advice. It is well to have interesting and practical tractor material at hand.

The Cleveland Tractor Co.

"Largest Producers of Tank-Type Tractors in the World"

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**The Largest, Finest and Best
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America.**

**Special Rates to All O. S. U.
Students**

He is much interested in his work, and evidently enjoys it. When he speaks, his words are backed up with the years of experience he has had. He has the honestly and shrewd good sense which we associate with the people who come from Scotland. In a word, he is one of the men we are proud to know.

T. D. PHILLIPS PROMOTED

T. D. Phillips, assistant chief of the state bureau of markets and marketing, was promoted Monday to chief of the bureau by Secretary N. E. Shaw, of the state department of agriculture. Phillips will succeed V. H. Davis, who has resigned, effective April 1, to become head of the Catawba Orchard Co., of Catawba Island in Lake Erie. Phillips was an assistant professor in the department of Rural Economics at Ohio State University before joining the Bureau of Markets.



C. K. SEIBERT, President
I. D. SEIBERT, P. & Gen'l Mgr.
G. H. WOODROW, Sec'y & Treas.

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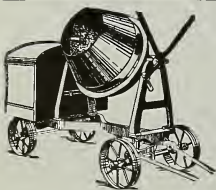


Russel W. George, '16, is developing a herd of Guernseys at Emmadine farm Hopewell Junction, N. J. He was business manager of THE AGRICULTURAL STUDENT in his senior year.

Leon Evans, '16, has resigned his position as county agent of Ross county and is now farming in Jackson county. His address is Jackson, Ohio.

Robert W. Hammond '16, is assistant secretary of the Ohio Wool Growers Association at Columbus.

Ralph Christian, '17, former editor of THE AGRICULTURAL STUDENT is developing a herd of Holsteins at Le Moyne, Ohio.



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Likewise less than car lots for shipment at all times from Columbus, O. Also Nitrapo (15% nitrogen, 15% potash) and all domestic and foreign potash salts. Also manufacturers of

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Pastries and Salted Nutmeats
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Should be sent in early for best service.

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Clothes last longer when thoroughly cleaned by

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We insure your garments against Fire and Theft Loss.

Prompt Delivery Service—Both Phones



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BUFFALO CORN GLUTEN FEED mixed as the principal *high protein* ingredient with wheat bran or wheat mill feed, as pictured above, makes the grain mixture that is fed to thousands of the cows in the nine states that supply the people of New York City with their milk.

If you have not yet fed *highly digestible* BUFFALO CORN GLUTEN FEED, tell your dealer you want some, and feed this mixture:

200 lbs. Buffalo Corn Gluten Feed
100 lbs. Wheat Bran or Mill Feed
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This grain mixture will make big milk checks for you, whether you sell your milk and cream in New York or Chicago, Detroit or Cleveland.

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Write to H. J. RORKE, Selling Representative, 904 Sweetland Bldg., Cleveland, O.



News Notes



WORK ON AMERICAN POMOLOGICAL SOCIETY

The organization of a student's branch of the American Pomological Society has been nicely started. Letters have been sent to all agricultural colleges in the East and Midwest and to date there are four charter members, namely, Indiana and Virginia, Massachusetts and Ohio State. Other colleges are expected to join in the near future. The national organization will put on a fruit show and hold its annual meeting in Columbus next December. More publicity of this will be given later.

HORTICULTURAL ANNUAL

The local horticulture society will put out the first annual this year. It is expected to be of bulletin size, having from 30 to 40 pages, and will cover the work of the year concerning horticulture. The chrysanthemum show, apple show, reunions, banquets, and A. P. S. notes. History and aims of the club will be featured. Some advertising of horticultural supply firms will be run in the back pages. Subscriptions of alumnae and all students interested will be solicited.

NEXT YEAR'S WORK

Plans are being laid for a large fall show, combining the chrysanthemum show and the apple show. This show is to be the biggest ever held and will take place in the first and second weeks of November. It is being held earlier than usual to avoid interference with the national show in December, and also the "mums" are in the finest condition at this time.

The National Vegetable Growers' Association will held its annual meeting on the campus about September 25-28. No program has yet been arranged.

STUDIES EFFECTS OF TORNADO IN NORTHWESTERN OHIO

Mr. Virgil Overholt, of the department of agricultural engineering, extension service, is going to the northwestern part of Ohio to study the effects the recent wind storm had on the farm buildings of that vicinity.

The object is to determine what type or types of buildings have resisted the force of the wind velocity most successfully. A comparison will be made between the old types of buildings and those types advocated by the department and to find out how and why any particular type of building stood best. The efficiency of the old square timber frame and particularly the new plank frame. The department has been advocating the plank frame barn and they want to learn if any failure of this type has been due to the method of construction, or if it has been due to the omission of some details, such as using nails where bolts should have been used.

At the conclusion of his study Mr. Overholt will have some very interesting and valuable information.

SOIL NEWS NOTES

Prof. F. E. Bear will go to the Pennsylvania State College the last week of June to deliver two lectures on Soils, to the school of fertilizer salesmen being held there at that time.

Mr. Thrash, who will receive his M. Sc. in June, has been appointed soils

assistant for next year. His work will be to assist in teaching and to have charge of the notes and records of the new fertility plots. At the same time he will be doing other work which will lead to his doctor's degree.

Mr. Guy Conrey has received notice from Director Thorne of being appointed to have charge of the soil survey work of the state. He will spend two months of the summer at Wooster, and will have direction throughout the year of the men engaged in this work. He will continue teaching here during the school year.

—Vance Clever.

SMITH-HUGHES DOPE

The following students have just completed their practice teaching: H. F. Link, at Canal Winchester; T. C. Wiley and T. C. Kennard, at Grove City; and R. L. Sunderland at Hamilton township.

The following Smith-Hughes teachers were on the campus during the last month trying to get a few new points in teaching: Geo. H. Krill, '18, from Millersburg; Ralph Richardson, '18, from St. Clairsville, M. L. Jorden, '18, from Blooinville, L. J. Smith, '17, from Fayette, and L. D. Munnell, '16, from Greenspring.

—E. B. Barker.

CAPPER-HERSMAN BILL

Evidence of serious unrest and disappointment at the failure of the Capper-Hersman bill to receive favorable action by the committees of Congress before which it has been pending since last fall, was manifest at a meeting of farm organization representatives, and Senators and Representatives favorable to the bill, held in the judiciary committee room, Senate office building yesterday. This bill

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Business Manager
Agricultural Student
O. S. U., Columbus,
Ohio

The Life of the Chilean Nitrate Deposits

The amount of Nitrates in the
Chilean Deposits is

720,000,000 Tons

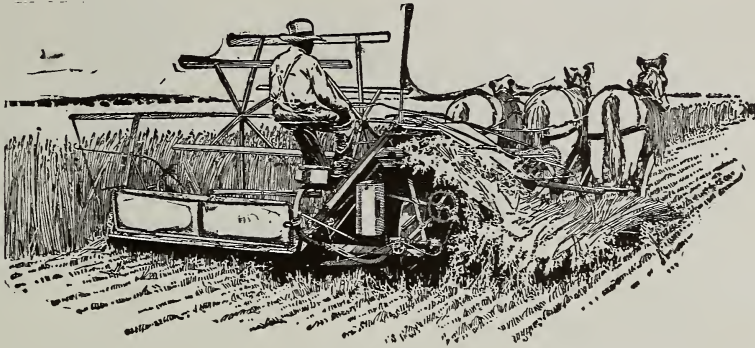
At present rate of world's consumption, deposits will last for

300 Years

Shipping conditions are improving. American farmers should learn the FACTS. Write for information.

Dr. William S. Myers
Chilean Nitrate Committee
25 Madison Ave., New York





A Solid Cutting Foundation

After all, the principal thing is to get the grain cut—all of it. And in order to do this successfully, a binder must have a smooth-working sickle that will not jam or bind, even when the binder is working on rough ground.

McCormick, Deering, and Milwaukee Grain Binders cut clean—and continue to do so during the entire life of the machine. There is no twisting, sagging or springing of the cutter bar, because the knife works back and forth on a solid foundation—a Z-shaped steel sill that effectually resists heavy strains imposed by operation in rough, uneven fields. There is no rubbing of sickle sections against guards nor binding due to springing or twisting of the sill, for it does not twist or spring.

This is only one of many features that make McCormick, Deering, and Milwaukee Grain Binders so efficient and dependable—that have won for these harvesting machines a world-wide reputation for economical, satisfactory service.

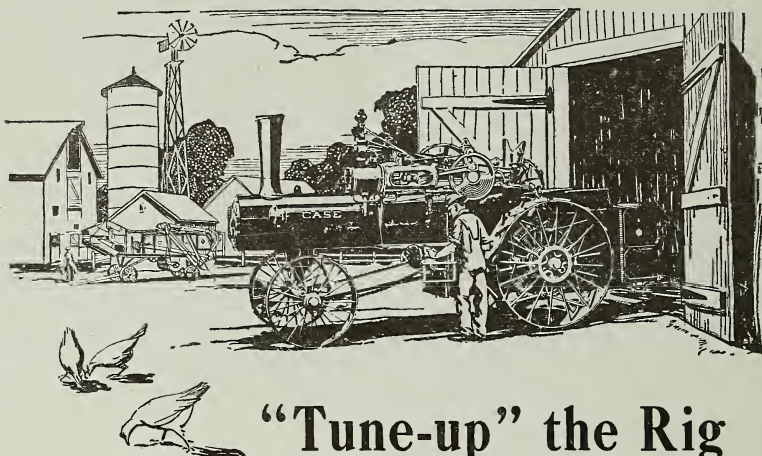
International full-line dealers everywhere handle these standard setting harvesting machines. A post-card will bring you descriptive catalogs.

INTERNATIONAL HARVESTER COMPANY

CHICAGO

OF AMERICA INC.

U S A



“Tune-up” the Rig

Only a few weeks remain before threshing season will be here with a rush. Be sure you are ready. Get your Case “Steamer” out and go over it.

See that the boiler is thoroughly clean inside. Polish piston rod and valve stem. Look for lost motion at both ends of connecting rod, and adjust the brasses if necessary. Re-pack the pump and possibly the governor stem. Clean oil holes and grease cups so that lubricant will pass freely to all bearings. Be sure that leads to water-column are clear. We suggest that you have on hand a supply of water glasses, with proper gaskets. The safety valve is probably all right, but be sure it “pops” when it should. Scrape out exhaust nozzle, giving the steam a clear passage, directly up the stack. Replace worn clutch shoes; also repaint boiler and stack.

Overhaul the separator belting and re-lace or replace where needed. Wash out every bearing with kerosene and see that oil holes are open. Replace worn teeth in cylinder and concave, and look for harmful endplay in cylinder. 1-64 inch is right. Examine every box and bearing and take up or re-babbitt where needed. Tighten loose nuts and replace lost bolts.

Be sure you have the supplies and tools you will need. It is well to have some spare parts on hand to guard against possible delays. Check up your stock of parts with the list suggested in your “Case Thresher Manual”, and order what you lack. If you have no copy of our “Thresher Manual”, you should have one, and we will send one on request.

Remember that time is money to the thresherman, and right now is the time to save time.

J. I. CASE THRESHING MACHINE CO., Inc., Dept. CL-5, Racine, Wis., U. S. A.
Making Superior Farm Machinery Since 1842

NOTE:
 We want the public to know that our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Co.

CASE
TRADE MARK REG. U. S. PAT. OFF.
POWER FARMING
MACHINERY

Look for the EAGLE, Our Trade Mark

To avoid confusion, the J. I. CASE THRESHING MACHINE COMPANY desires to have it known that it is not now and never has been interested in, or in any way connected or affiliated with the J. I. Case Plow Works, or the Wallis Tractor Company, or the J. I. Case Plow Works Co.

which is designed to legalize cooperative marketing, has been given wider approval and publicity by farm organizations, and agricultural people than any other measure pending in Congress since the Daylight Saving law passed over the President's veto last summer.

As the result of this meeting representatives of the National Board of Farm Organizations, the American Farm Bureau Federation, and the National Grange, have sent out notices to their constituent members today, notifying them that in spite of all efforts up to this time this bill was being "smothered in committees," so that they may take appropriate action to impress the necessity for this legislation on Senators and Representatives.

The arrest of officers of milk producers' associations, the activities of district attorneys, and the threats of prosecution which have handicapped

cooperative organizations in many communities have brought about a condition which makes this legislation imperative. The evidence is in hand of the holding back of many plans for cooperative organizations which could not fail to be of great benefit to producers and consumers alike.

The claim that this bill is "class legislation" is completely met by the reply that what the farmers ask is to accord to their cooperative associations the same rights now granted the joint stock companies under corporation law, so that farmers can elect management to do for them what is now done without question by the management of great corporations for their stockholders.

B. L. Thompson, '08, has resigned from the extension service at Ohio State in Licking County.

Prof. Rader's Dancing Calendar

NEIL AVENUE ACADEMY

Take Neil Ave. Car and get off at Poplar Ave.

647 Neil Ave.—Phones: Citiz. 4431; M. 6189

Beginners' Class Tuesday evening, May 11.

Afternoon Class Thursdays, 2:30.

Assembly Nights—Mon., Thur., Fri. and Sat.

Tuition for Beginners—Per term of 10 lessons, ladies \$5, gentlemen \$6; juveniles, per term of 12 lessons, \$5; private lessons, 5 for \$6.

Tuition can be paid \$1 a lesson until paid. Private lessons can be had afternoon or evening. We aim to teach you to dance in one term.

OAK STREET ACADEMY—827 Oak St.

Phones—Citiz. 7105; Residence, Citiz. 4431; Main 6189

A strictly private place for club dances, card parties and for classes that organize for special instruction.



OHIO ANNUAL CROP REPORTS FOR 1919

The crop reports for 1919 show that the farmers of Ohio were not slackers when the program of "increased production" was put before them. The acreage of winter wheat seeded in the fall of 1918 was twenty-five per cent larger than that of the previous year, not to speak of a 400 per cent increase in the acreage of spring wheat. Four thousand acres were added to the rye crop; 10,000 to barley and 100,000 to corn. Although corn was planted late because of wet weather, a late fall enabled the corn to mature and produce a record breaking crop, with a yield of 44 bushels per acre. Due to unfavorable weather for seeding and a preference for other crops the oats acreage was decreased nine per cent under that of 1918.

The winter wheat acreage had been exceeded but four times, 1880-81-82-99. The yield for 1919 was 19.1 bushels per acre. The quality of the crop was somewhat below the average. Rye and spring wheat as well as the other small grains suffered to some extent because of the hot and dry weather in June. Barley with its growing popularity as a feed had an acreage of 125,000 acres against 24,000 acres ten years ago.

The total acreage in 1919 was 11,547,000 acres, an increase of 358,000 acres over that of 1918. The total value of the crops according to the report was \$510,247,240.00 in 1919 and \$476,278,400.00 in 1918. These figures, which are good estimates, indicate that Ohio farmers have, for the most part, been well rewarded for their extra effort to answer the world's cry for more bread. —H. W. Harshfield.

FOR GOOD THINGS TO EAT

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MARZETTI'S RESTAURANTS

TENTH AVE. AND HIGH ST.

Seating capacity of Table service 300
Separate Ladies' Dining Room

59 EAST GAY STREET

Seating capacity of
Table Service 125

**HOME MADE PIES, PASTRIES, ETC.
CHICKEN, STEAKS, CHOPS,
SPAGHETTI, RAVIOLI, POLPETTE, ETC.**

We Serve Only the Best.

Special Dinners Lunches Plate Dinners

Our Tea Room Now Open for Parties at Any Time.

What a Hog Needs For Quick Growth

The right materials and correct quantity of each, are just as important in building a hog as in building a house.

For the frame. The growth of the hog depends upon the growth of the frame. The alfalfa flour and tankage in Pig Chow build a large frame.

For flesh. Elements for flesh, blood, hair and hide must be liberally supplied. Tankage, linseed meal and gluten feed in Pig Chow supply these elements.

For fat. Fat must be put on as the hog develops. Molasses, hominy, ground corn and gluten feed make fat, heat and energy.

Purina Pig Chow finishes hogs in twenty to thirty days less time than the average ration, and makes

25% to 40% more live hog

costing \$3.00 to \$6.00 less per 100 lbs. to produce. These are demonstrated facts. Get the data. Use Purina Pig Chow on your next lot. If your dealer should be sold out, write to

PURINA MILLS
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*Sold in
Checkerboard
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Only*



HEADS ALL HERDS

In Iowa Cow Testing Associations

The Quaker Oats Company,
Chicago, Ill.

McGregor, Iowa,
Jan. 30, 1920

Gentlemen:—I am pleased to state that we have used SCHUMACHER FEED quite extensively in growing and developing our herd.

It is a great aid in promoting heavy production of milk and butter fat. We appreciate it much because of its perfect balance which makes it a safe feed to use in large quantities when feeding for heavy production.

We have fed SCHUMACHER FEED with excellent results to hogs and horses as well as to the Dairy Herd.

Yours very truly,

R. G. KINSLEY.

Note: { R. G. Kinsley's Herd has been making the best record in the McGregor Cow Testing Association, which for several months has been leading all Testing Associations in Iowa, having the best ten highest producing cows.



The Schumacher Feeding Plan Will Help the Cows Increase Production

The Schumacher Feeding Plan consists of feeding SCHUMACHER FEED as the carbohydrate part of the ration and BIG "Q" DAIRY FEED as the protein part. These two feeds have proven with dairymen everywhere to be the ideal combination for best health conditions and maximum milk production. They simplify your ration problem—insure greater accuracy and uniformity, and require much less labor.

SCHUMACHER FEED is a finely ground, kiln dried, carbohydrate ration composed of various grain by-products that best supply the necessary maintenance for long time milk production. It affords that much needed variety of grains so essential and necessary to keep your cows in tip-top physical condition—to provide stamina and endurance to withstand the strain of long milking periods.

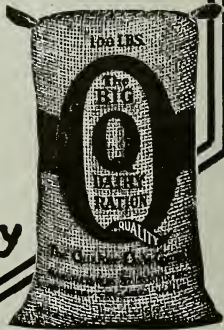
In addition to being the acknowledged **best** carbohydrate feed for dairy cows, it is also wonderful milk producer. With SCHUMACHER FEED as the maintenance part of the ration and BIG "Q" as the milk producing part, you have a ration that assures maximum production from **any** cow of **any** breed.

SCHUMACHER FEED in addition to being the acknowledged **best** carbohydrate feed for dairy cows, is also splendid for feeding all your farm stock. It puts "pep" and vigor into your horses—makes calves and hogs grow fast and produces big frames. It restores strength and vitality so dry cows assuring maximum milk production during the next lactation period.

Get a supply of SCHUMACHER and BIG "Q" from your dealer—let these feeds do for you what they are doing for thousands of other successful dairymen and farmers.

The Quaker Oats Company

Address, CHICAGO, U. S. A.



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MOLINE

The Universal Tractor

DOES all field work—including cultivating, harvesting and belt work. One man operates both the tractor and the implement. The operator sits in complete safety in the usual place—on the seat of the implement.

The work is always in plain sight—no looking backward. Tractor and implement form one unit—can back and turn short.

These indispensable features are particularly profitable at harvest time, when one man instead of two can cut the ripe grain at the rate of 40 acres in 10 hours.

The necessity for saving time and labor is the greatest consideration before the farmer today.

MOLINE PLOW COMPANY

MOLINE, ILLINOIS

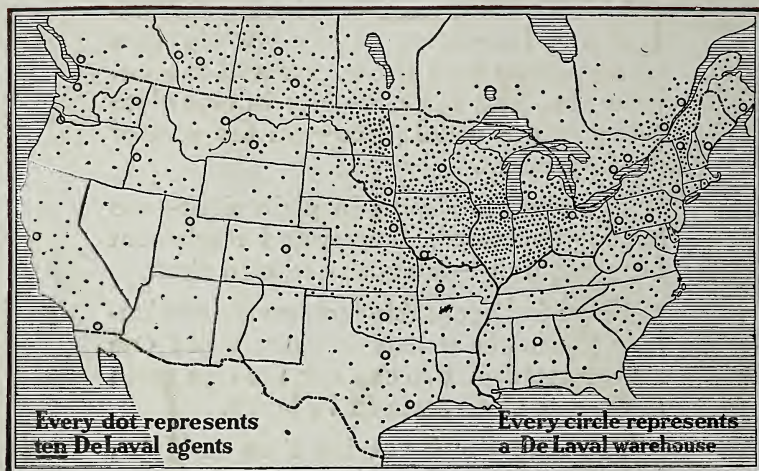
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**This map shows how completely the service of the
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Every separator user realizes the importance of having his separator in use every day. Delays waiting for parts, with a separator out of use, mean great inconvenience and loss of product.

Every dot on the map represents ten De Laval agents, and every De Laval agent is individually trained to assist his customers in setting up and operating their machines, to furnish and put in place repair parts, and to insure prompt service and satisfaction to De Laval users.

Not only is the De Laval Cream Separator superior in all points of separator efficiency, but every user of a De Laval is assured of prompt and competent service for all the years to come.

It is therefore not surprising that there are more De Laval Separators in use than all other makes combined. Now is a good time to begin saving time and product by securing a De Laval.

The nearest De Laval agent will be glad to demonstrate a De Laval. If you do not know his name, write to nearest De Laval office

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